



Psychological Need-Based Experiences as Energizing Processes for Mothers' Identity Formation

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Abstract

Research anchored in self-determination theory (SDT) has demonstrated the positive effects of parental need support on children's ability to formulate a clear and integrated identity. However, much less is known about what motivates parents' identity formation processes and how these processes are related to their parenting practices. Integrating SDT with identity formation theorizing, this study investigated mothers' identity processing style as a possible mediator of the relationship between their own need-based experiences and their parenting practice. In total, 429 Israeli mothers of preschool children (age 3–6 years) participated in the study. Participants provided information about their experience of psychological need satisfaction and frustration, identity processing styles, identity commitment, and parenting practices. Results showed that mothers whose basic psychological needs were satisfied were more likely to provide autonomy support and structure in their interactions with their children. This relationship was mediated by mothers' tendency to adopt a more informational identity processing style and higher identity commitment. In contrast, mothers' experiences of need frustration were associated with psychologically controlling and chaotic practices through diffuse-avoidant identity processing style. A normative identity style mediated the association between mothers' need frustration and their use of psychological control and structure. Our findings suggest that the satisfaction of mothers' basic needs provides them the inner resources to explore existing identity options and facilitates greater self-organization and integrated identity development. In contrast, the frustration of mothers' psychological needs has an energy-depleting effect on mothers.

Keywords Mothers · Self-determination theory · Identity processing style · Autonomy-supportive parenting · Controlling parenting

Highlights

- This study integrates identity formation theorizing with self-determination theory.
- Mothers' need satisfaction is an essential resource for their parenting.
- Mothers' informational identity style was related to autonomy-supportive and structuring parenting.
- Mothers' diffuse avoidant identity style was related to psychologically controlling, chaotic parenting.
- Mothers' normative identity style was related to psychologically controlling and structuring parenting.

An increasing number of studies anchored in self-determination theory (SDT) perspective have demonstrated that the satisfaction of the three basic psychological needs for autonomy, competence, and relatedness is an important

determinant of one's ability to formulate an integrated personal stance on important existential issues such as ideology, relationships, and life goals (La Guardia, 2009, Soenens et al., 2005). Studies conducted mainly with adolescents suggested that the support of the three basic psychological needs by teachers and parents provides children essential resources and energy to explore existing identity options and facilitates greater self-organization and integrated identity development (Soenens et al., 2005). Need satisfaction was associated with both adaptive identity processing styles and high identity commitment. In other words, children whose needs were

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satisfied were more likely to use adaptive strategies to process identity-relevant information, make personal decisions, and negotiate identity-relevant problems and develop increased strength and clarity of these self-relevant standards, goals, and beliefs (Berzonsky, 2003). Conversely, the frustration of psychological needs limits children's active and critical thinking and results in a fragmented, loosely integrated identity structure (Berzonsky & Ferrari, 1996). However, much less is known about what motivates parents' identity formation processes (Piotrowski, 2020) and how these processes are related to their parenting practices. Given the importance of parental identity processing style to both parents' well-being and their parenting behavior (Fadjukoff et al. (2016)), it is necessary to explore the factors that energize parents to invest in identity exploration and commitment.

Autonomy-Supportive and Controlling Parenting

Self-determination theory (SDT) posits that all individuals are endowed with three universal psychological needs: the need for autonomy, the need for competence, and the need for relatedness. These three basic needs were broadly defined as critical resources underlying individuals' natural inclination to move towards increasing self-organization, adjustment, and flourishing (Vansteenkiste et al., 2020). The concept of autonomy reflects the feeling of being the origin of one's own behaviors. Competence is described as the feeling of achieving desired outcomes, and relatedness is defined as the feeling of being understood and cared for by others.

Need satisfaction can be facilitated through meaningful interactions with key socialization figures, such as teachers and parents (Ahmad et al., 2013, Vansteenkiste & Ryan, 2013). Current SDT literature defines need support primarily by parents' and teachers' ability to provide autonomy support and structure (Aelterman et al., 2019, Moè & Katz, 2020a). Parents who provide autonomy support give meaningful rationales, offer choices which children value, seek and acknowledge children's perspectives and nurture children's internal motivation, interest, and enjoyment. Structuring parents typically define clear rules, expectations, and guidelines that help to facilitate a child's experience of competence. When rules, guidelines, and contingencies are spelled out, and clear feedback is provided for behavior, children are most likely to achieve success and have a sense of perceived control. Autonomy support and structure are considered to be motivating because they satisfy children's basic psychological needs for autonomy, competence, and relatedness (Aelterman et al., 2019), as defined by SDT. In contrast, parents and teachers who use psychologically controlling and chaotic

practices are likely to frustrate children's three basic psychological needs. Psychologically controlling parents tend to adopt a tunnel view in which their own expectations and preferences get prioritized. Such parents motivate children by inducing internal (e.g., guilt-induction) or external (e.g., intimidating, use of behaviorally contingent rewards) pressures and providing feedback in a manipulative, rather than informational manner (Bartholomew et al., 2011, Soenens & Vansteenkiste, 2011). Chaotic parenting is characterized by inconsistent, erratic, or arbitrary practices or emotion, as well as a lack of or unclear limits. The controlling and chaotic styles are considered need-frustrating because children feel incompetent, neglected, and unimportant (Sierens et al., 2009). Many studies within the SDT framework showed that autonomy-supportive, structuring parenting is associated with beneficial academic, psychological, and health outcomes (e.g., Katz et al., 2019, Wuyts et al., 2017), while psychologically controlling, chaotic parenting is associated with maladaptive outcomes, as indicated by children's school underachievement (e.g., Su et al., 2014), lower academic competence (e.g., Marbell & Grolnick, 2013), lower motivation to learn (e.g., Katz et al., 2011), and higher academic drop-out rates (Ricard & Pelletier, 2016).

Parental Need-Based Experiences as Antecedents of Parenting Practices

While the relationship between children's satisfaction of the three basic psychological needs and their development is well established, research has only recently recognized the importance of need satisfaction for parents' well-being (Ross-Plourde & Basque, 2019) as much as for their ability to provide autonomy-supportive parenting (Brenning & Soenens, 2017, Costa et al., 2018). The idea of "support provided to the supporters" (Katz et al., 2011) is well researched in the relations between students and teachers. The experience of need satisfaction promotes teachers' self-efficacy, elevates work engagement, facilitates positive emotions, and reduces burnout (Tschannen-Moran & Hoy, 2007). Hence, need satisfaction serves as an internal resource of motivation and energy (Chen et al., 2015) which facilitates teachers' ability to support their students (Assor et al., 2020, Moè & Katz, 2020b). The relationship between parents' basic need experiences and their parenting styles was identified both at the between-parent level (van der Kaap-Deeder et al., 2015) and the within-parent level (Mabbe et al., 2018). At the between-parent level, fathers' and mothers' need satisfaction was associated with less controlling parenting (de Haan et al., 2013). At the within-parent level, daily variability in fathers' and mothers' need satisfaction was uniquely related to day-to-day variability in

autonomy practices parenting, whereas daily variability in parental need frustration was uniquely related to daily variability in controlling parenting practices (Mabbe et al., 2018). These findings correspond to the dual-process model within the SDT, which distinguishes between the "bright" socialization pathway (where need satisfaction is more strongly related to adaptive outcomes) and the "dark" pathway (where need frustration is more strongly associated with maladjustment) (Soenens et al., 2017).

Despite the growing recognition of the association between parents' psychological need-based experiences and their parenting style, only a few studies have examined the underlying mechanisms explaining these relations.

These studies found that parental availability and vitality mediated the association between parental need satisfaction and autonomy support, whereas stress mediated the association between parental need frustration and controlling parenting (Dieleman et al., 2019, van der Kaap-Deeder et al., 2019). While these studies highlighted the role of the environment in supporting parents' basic needs, they overlooked parental characteristics that may affect their perception of the environment as satisfying or frustrating. SDT research suggests that individuals' tendency to capture their environments as informational or pressuring (autonomous orientation or controlled orientation, respectively) was associated with their identity processing style (Soenens et al., 2005). For example, youth with autonomous orientation who base their actions upon personal values and interests were more likely to actively seek out and process identity-relevant information, whereas youth who organize their behavior based on external controls and constraints (controlled orientation) tend to define themselves in terms of the norms and expectations held by significant others (Soenens et al., 2005). These findings indicate that inter-individual variability in the ways parents process and interpret potentially satisfying or frustrating interactions with their social environments may explain how and to what extent need-based experiences are translated into certain parenting practices.

Parental Identity Processing Styles

Parenting is regarded as a focal life domain by most adults. It has been defined as a reflexive process (Fracasso, 2017), that entails thought, emotions, beliefs, and values as well as interactions both with children and other adults (Fadjukoff et al. (2016)). Previous research has demonstrated that for mothers and fathers alike, becoming a parent is a crucial transformation within the life course, involving major transformations in identity and relationships (Ahlborg et al., 2009, Perun, 2013).

Parental identity processes are important predictors of parents' attitudes and behaviors. Fadjukoff et al. (2016)

found that parental identity achievement was associated with authoritative, child-centered, higher nurturance, and structured parenting style. In contrast, non-committed parental identity was associated with a low level of nurturance. Therefore, parents' approach to issues and conflicts related to their parental role may be considered a good indicator of the practices they tend to use.

In line with Berzonsky's (1990) conceptualization, identity comprises the social-cognitive strategies that individuals prefer to use to process identity-relevant information, make personal decisions, and negotiate identity-relevant problems. Berzonsky (1989, 1990) proposed three identity-processing orientations: informational, normative, and diffuse-avoidant. Individuals with an informational style openly seek out and actively evaluate self-relevant information. They were found to be self-reflective, conscientious, open to experience, problem-focused, and vigilant decision-makers (Berzonsky, 1990, Berzonsky & Ferrari, 1996). Those who have a normative style follow the expectations and prescriptions of others, with marked rigidity in exploring or incorporating new information that may challenge or threaten their self-structure. Finally, those with a diffuse-avoidant style actively evade considering information and situations that challenge identity-relevant decisions until ultimately, they are coerced by situational demands or incentives to follow a course of action (Berzonsky & Neimeyer, 1994). Individuals with a diffuse-avoidant style have been found to utilize maladaptive coping mechanisms (Berzonsky, 1992, Soenens et al., 2005), to be prone to feelings of shame (Lutwak et al., 1998), and to display externalization problems (Adams et al., 2001). Identity styles are also associated with differences in identity commitments.

Research suggests that an informational style was used by youth who have achieved or are in the process of forming personal identity commitments. A normative processing style was associated with foreclosed identity commitments, formed without an active process of self-exploration. Finally, a diffuse-avoidant identity processing style was used by uncommitted adolescents classified as having a diffusion identity status (Berzonsky & Neimeyer, 1994, Schwartz et al., 2000).

Applying Berzonsky's model to the development of parental identity, Piotrowski (2018) recently suggested that when an individual becomes a parent, there is a process of greater or lesser identity commitment and identification with the parental role, which manifests itself in the level of satisfaction and self-confidence in performing this role. Identity commitment in the parenting domain is usually accompanied by in-depth exploration, which is expressed in the search for information about the child and about parenting. In his research, Piotrowski (2018) showed that identity commitment in the parental domain was positively

related to general life satisfaction, vocational identity development, and a general sense of identity. The diffuse-avoidant identity style was positively related to difficulties in developing a stable parental identity. In the current study, we wished to provide further insight into the development of parental identity by focusing on the motivational underpinnings of the identity exploration process and the association between parents' identity processing style and their parenting practices.

Need Satisfaction as an Energizer for Parental Identity Processes

Studies bridging the SDT with Berzonsky's social-cognitive model suggested that the satisfaction of the three basic psychological needs is an important determinant of one's ability to formulate a clear and integrated personal stance on important existential issues such as ideology, values, relationships, and life goals (La Guardia, 2009, Soenens et al., 2005). In SDT, the self is viewed as a source of energy and growth that, ideally, provides individuals with opportunities to use increasingly sophisticated strategies of identity construction (Luyckx et al., 2009, Ryan & Deci, 2003). Therefore, when people's basic psychological needs are satisfied, they would have the vitality and energy necessary to engage in identity construction strategies. In contrast, when people's needs are frustrated, they may be more likely to take shorter and less energy-consuming trajectories of identity formation, thereby either defensively avoiding any form of change or adopting volatile and situation-specific identity commitments (Soenens & Vansteenkiste, 2011). The need satisfaction main-effects model assumes that basic need satisfaction influences or drives developmental changes in identity. Such a model would be in line with several theoretical and empirical contributions that conceptualize the satisfaction of these basic needs as energizing processes for identity formation (Flum & Blustein, 2000, Guay et al., 2003). For example, research with adolescents showed that need satisfaction was associated with volitional identity commitments and intrinsic identity goals, whereas need frustration was associated with pressured identity commitments and with extrinsic identity goals (Luyckx et al., 2007, Smits et al., 2010).

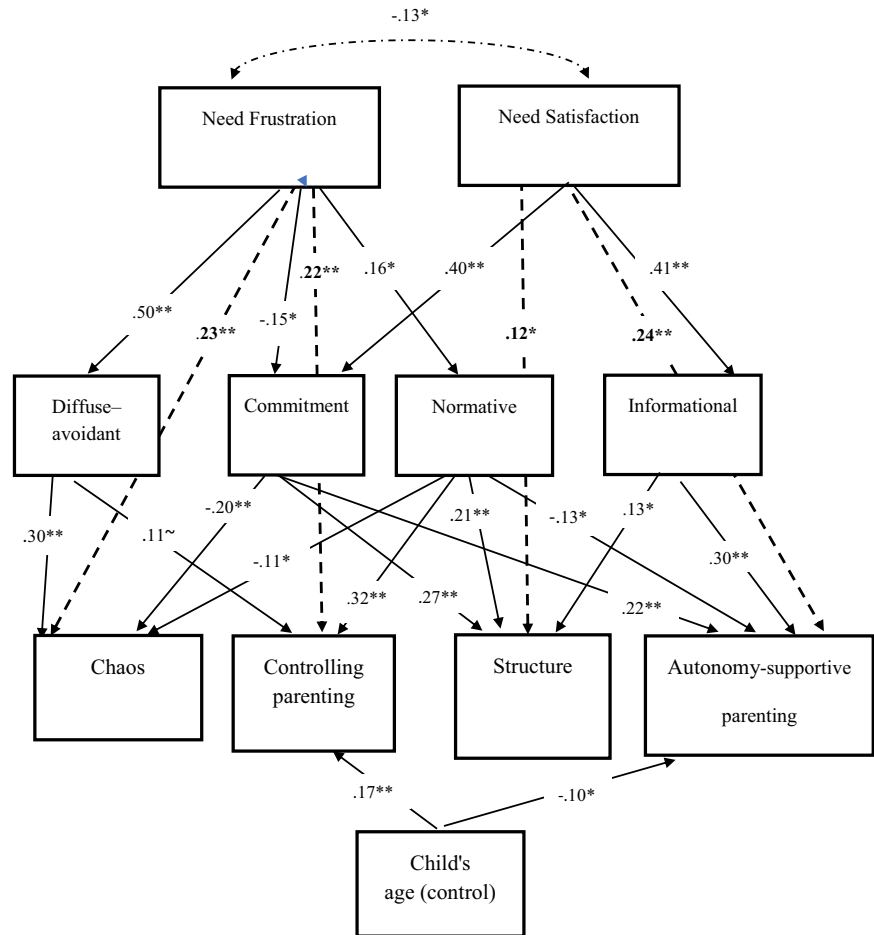
Consistent with the SDT literature, these findings suggest that the satisfaction of one's basic needs is especially critical for the internalization or personal acceptance of one's chosen identity, such that the adopted identity originates from one's authentic sense of self as well as facilitate the commitment toward a particular identity option (Luyckx et al., 2009). Translated into the parenting context, this implies that the experience of total need satisfaction in parental life plays an energizing role in identity-related

efforts conceptualized as multiple dimensions of proactive exploration of different identity issues and to the endorsement of certain identity options commitment. Notably, the SDT emphasizes that the process of identity formation occurs in a constant reciprocal interaction with the social environment; while experiences of need satisfaction promote the construction of adaptive identity processes, such identity processes may also create opportunities for need satisfaction and volitional functioning (Ryan & Deci, 2003). According to SDT, identities are adopted in the service of these basic psychological needs (Ryan & Deci, 2003), so that people are naturally inclined to explore and dedicate much of their energies toward those activities, roles, and relationships that promote basic psychological needs (La Guardia, 2009). Thus, adequate environmental support not only creates the necessary conditions for identity formation but also affords new and increasingly satisfying opportunities to interact with the social environment.

The Current Study

Maternal identity has been defined as the assimilation of the maternal role into a woman's self-concept, including how she would describe and evaluate herself in that role (Walker and Montgomery (1994)). Dominant social, cultural, and professional discourses view motherhood as the core of a woman's feminine identity (Ennis, 2014), achieved through a reciprocal relationship between mothers and their socio-cultural context (Gergen, 2009). Thus, all three basic psychological needs are implicated in a mother's adjustment in the transition to parenthood (Gauthier et al., 2010). The overall aim of the current study was to examine the mother's identity style as a possible mediator of the association between her own need-based experiences and her parenting practices. This study integrates SDT with identity theorizing, as both converge on the tenet that humans are proactive organisms acting on their inner and outer environments to develop a more unified sense of self (Ryan & Deci, 2003). Guided by these tenets, we assumed that the mother's need satisfaction in daily life provides her with the necessary energy for proactive exploration of different identity issues and a commitment to certain identity options. Mother's ability to actively seek out, process, and evaluate self-relevant information (rather than avoiding it) will facilitate empathic engagement with her children, which in turn enables her to adopt a need-supportive parenting style. Conversely, the frustration of the mother's psychological needs may leave her ill-equipped to self-regulate around challenges posed in their maternal identity (e.g., changes in child's needs, child maturation). Low identity integration and commitment will increase the likelihood she experiences stress, anxiety, confusion, and shame around her

Fig. 1 Structural relations between the study variables.
* $p < 0.05$; ** $p < 0.001$



maternal functioning, thus increasing her use of controlling and chaotic parenting practices.

The hypothesized integrated model is shown in Fig. 1.

This model was tested among mothers of preschool children (aged 3–6 years). Most studies that have examined autonomy-supportive and controlling parenting behaviors have focused on parents of adolescents (e.g., de Haan et al., 2013, Mageau et al., 2015, 2016) or elementary school children (Joussemet et al., 2014). The rationale for studying early correlates of parental identity and behavior was based on research indicating that the preschool years are foundational for establishing and supporting children's intellectual and socio-emotional development (Howard and Vasseleu, 2020). Recent studies within the SDT framework demonstrated that preschoolers are highly vulnerable to the short and long-term developmental effects of autonomy-supportive or controlling parenting, including the development of self-regulation and executive functions (Matte-Gagné & Bernier, 2011, Meuwissen & Carlson, 2015; 2019). In line with the SDT dual-process model (Vansteenkiste & Ryan, 2013), we hypothesized that mothers' need satisfaction would be primarily and positively related to their ability to provide their children autonomy-support and structure via informational

identity processing style and high identity commitment. In contrast, we hypothesized that need frustration would be primarily and positively associated with psychologically controlling and chaotic parenting through diffuse-avoidant identity processing style and low identity commitment. Finally, we hypothesized that need frustration would be primarily and positively associated with the use of psychological control and structure through normative identity processing style and high identity commitment.

Method

Participants

A total of 429 Israeli mothers who had at least one child between the age of 3 and 6 years took part in the study. The majority of these mothers (75.3%) were between the ages of 31 and 40, were married (90.2%), and were employed (93.7%). Of those employed, 74% worked full time and the rest part-time. The number of children ranged from 1 to 7, as 14.7% of the women had one child, 51.7% had two

children, 21.7% had three children, and the rest had four children or more. About half of the participating mothers (57.8%) referred to their first-born child when answering the questionnaire, 19.8% reported on their second-born child, and the rest reported on their third or more child. Fifty-two percent (52.2%) of the reported children were boys. Almost all mothers were Jewish (98.4%), with various degrees of religious affiliation: most of them were secular (69.9%), 14.5% were traditional, and the rest were religiously observant. Only 1.6% of the sample were Arab mothers. Twelve percent of the participants (12%) immigrated to Israel, mainly from the former Soviet Union. Most participating mothers (84.4%) and their male partners (75%) had an academic degree. To have adequate power to detect a medium effect size in a multiple regression using a two-tailed test with six predictors, $\alpha = 0.05$, and power = 0.80 (Cohen, 1992), a minimum of 97 participants was required.

Procedure

Participants were recruited through an online social networking site (i.e., Facebook) and parents' *WhatsApp* groups. Participants were invited to complete a 15 min survey about their maternal attitudes, beliefs, and practices. Participants completed the online survey at their convenience. In case the participant had more than one child in the age range of 3–6 years, she was asked to consistently report about one of them. Respondents were informed that participation was voluntary without remuneration and that the responses would be analyzed anonymously. The study was approved by the Institutional Research Ethics Committees and was carried out according to the ethical standards of research with human subjects.

Measures

Background variables included mothers' and child's age, ethnicity, education level, child's gender, number of children, child's birth order, year of birth, and parents' employment (part-time or full-time).

Basic psychological needs satisfaction/frustration. To capture the experience of satisfaction and frustration of mothers' basic psychological needs, we used the Basic Psychological Needs Scale (BPNS; Chen et al., 2015). Participants filled out the full 24-item version that has 12 items tapping needs satisfaction, and 12 items tapping need frustration. All items were rated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each 12-item scale has four items tapping autonomy, four items tapping competence, and four items tapping relatedness. For this study, items were adapted to address needs satisfaction and frustration in the maternal role. For instance, the item "I feel I can be myself" was converted to "As a mother, I feel

I can be myself". For each individual, the total needs satisfaction and the total need frustration scores were calculated by taking the means of the 12 needs satisfaction scores and the 12 need frustration scores, respectively. In the current study, the Cronbach's alphas were 0.86 for needs satisfaction and 0.81 for needs frustration.

Identity Style Inventory (ISI-5; Berzonsky et al., 2013) indexes three social-cognitive styles of making decisions, coping with personal problems, and negotiating identity issues: (1) The informational-style scale (9 items: e.g., "I've spent a great deal of time thinking seriously about what I should do with my life," "When I have to make a decision, I like to spend a lot of time thinking about my options. (2) The diffuse-avoidant-style scale (9 items: e.g., "I'm not really thinking about my future now; it's still a long way off," "Sometimes I refuse to believe a problem will happen, and things manage to work themselves out"); and (3) The normative-style scale (9 items: e.g., "I prefer to deal with situations where I can rely on social norms and standards," "I find it is best for me to rely on the advice of close friends or relatives when I have a problem"). For this study, items were adapted to address the processing style related to the participant's role as a parent. For instance, the item "When I have to make a decision, I like to spend a lot of time thinking about my options" was converted to "When I have to make a decision as a mother, I like to spend a lot of time thinking about my options". Cronbach's alphas were 0.85 for informational-style scale, 0.78 for the diffuse-avoidant-style scale and 0.72 for the normative-style scale. The ISI also includes a separate measure of the strength of Identity Commitment (8 items: e.g., "I have a definite set of values that I use in order to make personal decisions," "I know what I want to do with my future"). Cronbach's alpha for the identity commitment scale was 0.74.

Autonomy- supportive and controlling parenting. To capture the extent to which mothers provide autonomy-supportive or controlling parenting, we employed the Perceived Autonomy Support Scale (P-PASS; Mageau et al., 2015). This 24-item scale was originally designed to measure young adults' perceptions of their parents' autonomy-supportive or controlling parenting (Mageau et al., 2015). For the current study, the items were adapted for self-report responses, such that the mothers were asked to indicate the extent to which they displayed a particular practice in their relationship with their child. The P-PASS measures three autonomy-supportive behaviors and three controlling practices. Autonomy-supportive behaviors are the provision of choice (e.g., "I provide my child many opportunities to make his/ her own decisions about what he/she is doing"), acknowledgment of the child's feelings (e.g., "I am open to my child's thoughts and feelings even when they are different from mine"), and provision of a rationale for rules and demands (e.g., "When I ask my child to do something, I explain why I want him/her to do it").

Table 1 Descriptive Statistics and Correlations across Variables ($N = 429$)

	1	2	3	4	5	6	7	8	9	10	11
1. Need Satisfaction	–										
2. Need Frustration	–0.58**	–									
3. Informational	0.40**	–0.16*	–								
4. Normative	–0.036	0.14*	–0.12*	–							
5. Diffuse Avoidant	–0.30**	0.47**	–0.33**	0.39**	–						
6. Commitment	0.50**	–0.32**	0.47**	0.18**	–0.40**	–					
7. Autonomy-supportive Parenting	0.50**	–0.26**	0.51**	–0.12*	–0.29**	0.40**	–				
8. Structure	0.29**	–0.05	0.28**	0.22**	–0.15*	0.44**	0.43**	–			
9. Chaos	–0.29**	0.39**	–0.23**	0.013	0.45**	–0.41**	–0.23**	–0.27	–		
10. Controlling Parenting	–0.22**	0.34**	–0.10*	0.41**	0.32**	–0.01	–0.27**	0.24**	0.36**	–	
11. Child's Age	0.00	–0.14**	0.00	0.22**	–0.02	0.18**	0.09	0.11*	–0.13**	0.21**	–
Mean	3.86	1.85	3.70	2.07	1.71	3.80	4.05	3.91	1.90	2.11	
SD	0.51	0.47	0.59	0.49	0.46	0.60	0.53	0.53	0.52	0.58	

* $p < 0.05$, ** $p < 0.01$

Controlling behaviors are guilt-inducing criticisms (e.g., ‘I make my child feel guilty for the certain thing he or she does’), use of threats (e.g., ‘When my child refuses to do something, I threaten to take away certain privileges to make him/her do it’), and performance pressures (e.g., ‘My child should do his/her best in order me to be proud of it’). Total scores for autonomy support and controlling parenting were obtained by averaging the relevant subscales. Past research shows that autonomy-supportive and controlling behaviors form two separate factors in exploratory factor analyses (Mageau et al. 2015). Answers were rated on a seven-point Likert type scale ranging from 1 (do not agree at all) to 7 (very strongly agree). The Cronbach’s alphas were 0.85 for items addressing autonomy-supportive parenting and 0.84 for items addressing controlling parenting.

Structure and chaos - Mothers’ use of structure and chaos in their parenting practices were measured by the Parents as Social Context Questionnaire (Skinner et al., 1986). Ten items were selected from the questionnaire to tap two parenting dimensions: providing structure (5 items) and chaos (5 items). Examples for the structure dimension are ‘‘I make it clear what will happen if my child does not follow our rules’’ and ‘‘I make it clear to my child what I expect from him/her’’. Examples for the chaotic dimension are ‘‘When my child gets in trouble, my reaction is not very predictable’’ and ‘‘My child doesn’t seem to know what I expect from him/her’’. The Cronbach’s alphas were 0.67 for items addressing structure and 0.66 for items addressing chaos.

Data Analysis and Results

We first calculated Pearson correlations for all the research variables. Since the child’s age was positively related to

normative identity processing style, identity commitment, structure, and controlling parenting and negatively associated with need frustration and chaotic parenting, the correlations were partialled out for the child’s age (Table 1). Results showed that when controlling for the reported child’s age, mothers’ need satisfaction was positively associated with informational identity processing style, identity commitment, as well as with autonomy-supportive and structuring parenting. Mothers’ experience of need satisfaction was negatively associated with need frustration, diffuse avoidant identity style, and controlling and chaotic parenting. Mothers’ experience of need frustration was positively associated with normative and diffuse avoidant identity style, as well as with psychologically controlling and chaotic parenting styles. Mothers’ need frustration was negatively associated with informational style and identity commitment as well as with autonomy-supportive parenting. This set of correlations supported the feasibility of investigating the hypothesized mediation model.

We used structural equation modeling (SEM) with maximum likelihood estimation via AMOS 21 (Arbuckle & Wothke, 2006) to test the fit of the hypothesized model (see Table 2 and Fig. 1). A child’s age served as a covariate. The fit of the model to the data was evaluated using five goodness of fit indices. Two of these indices were absolute: the χ^2 statistic, and the Root Mean Square Error of Approximation (RMSEA). The remaining three indices were incremental: The Normed Fit Index (NFI), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI). RMSEA below 0.08, in combination with NFI, CFI, and TLI above 0.90, indicates adequate fit (Preacher & Hayes, 2008, Schreiber et al., 2006). The model fit to data was adequate, thus confirming the mediation hypothesis: $\chi^2/df = 3.558$, $p = 0.000$; NFI = 0.96; CFI = 0.97; TLI = 0.90;

Table 2 Results of a structural equation modeling

			β	<i>B</i>	S.E.	C.R.	<i>P</i>
Need Frustration	→	Commitment	-0.146	-0.188	0.061	-3.100	0.002
Need Frustration	→	Diffuse Avoidant	0.500	0.502	0.040	12.400	0.000
Need satisfaction	→	Informational	0.409	0.471	0.049	9.628	0.000
Need satisfaction	→	Commitment	0.396	0.467	0.056	8.328	0.000
Need Frustration	→	Normative	0.157	0.165	0.059	2.791	0.005
Need satisfaction	→	Normative	0.062	0.059	0.052	1.150	0.250
Commitment	→	Chaos	-0.198	-0.171	0.047	-3.647	0.000
Need Frustration	→	Controlling parenting	0.220	0.269	0.057	4.762	0.000
Need Frustration	→	Chaos	0.227	0.253	0.052	4.851	0.000
Diffuse-Avoidant	→	Chaos	0.297	0.329	0.061	5.385	0.000
Informational	→	Structure	0.130	0.117	0.045	2.578	0.010
Informational	→	Autonomy-supportive Parenting	0.297	0.265	0.041	6.451	0.000
Commitment	→	Structure	0.275	0.242	0.052	4.682	0.000
Commitment	→	Autonomy-supportive Parenting	0.218	0.190	0.047	4.057	0.000
Need Satisfaction	→	Autonomy-supportive Parenting	0.244	0.251	0.045	5.554	0.000
Need Satisfaction	→	Structure	0.118	0.122	0.049	2.512	0.012
Normative	→	Controlling Parenting	0.321	0.374	0.059	6.349	0.000
Normative	→	Structure	0.209	0.226	0.055	4.121	0.000
Normative	→	Autonomy-supportive Parenting	-0.130	-0.139	0.050	-2.807	0.005
Diffuse-Avoidant	→	Controlling Parenting	0.110	0.134	0.070	1.922	0.055
Normative	→	Chaos	-0.101	-0.107	0.051	-2.080	0.038
Commitment	→	Controlling Parenting	0.053	0.050	0.054	0.931	0.352
Informational	→	Chaos	-0.005	-0.005	0.042	-0.111	0.912
Informational	→	Controlling Parenting	-0.009	-0.008	0.048	-0.173	0.863
Diffuse-Avoidant	→	Structure	-0.051	-0.058	0.061	-0.956	0.339
Diffuse-Avoidant	→	Autonomy-supportive Parenting	0.030	0.034	0.055	0.617	0.537
Child's Age	→	Chaos	-0.030	-0.015	0.020	-0.749	0.454
Child's Age	→	Controlling Parenting	0.172	0.095	0.023	4.062	0.000
Child's Age	→	Structure	0.010	0.005	0.022	0.238	0.812
Child's Age	→	Autonomy-supportive Parenting	-0.110	-0.056	0.020	-2.851	0.004

RMSEA = 0.077. Specifically, on the "dark path" mothers' experience of need frustration was positively associated with diffuse avoidant and normative identity styles and negatively associated with commitment. On the "bright path", mothers' need satisfaction was positively associated with informational identity style and high commitment. These identity styles, in turn, were associated with the various parental practices: Diffuse avoidant style was associated with chaotic parenting, and (approaching significance) with controlling parenting. Normative identity style was negatively associated with chaotic parenting and autonomy-supportive parenting and positively associated with controlling and structuring parenting. A high commitment was negatively associated with chaotic parenting and positively associated with structure and autonomy support. Informational style was positively associated with mothers' ability to provide their children structure and autonomy support.

Sobel tests (Sobel (1982)) were conducted to determine if the indirect effects of identity processing styles and identity commitment on parenting behavior were significant. The Sobel test supported the indirect effect of informational identify processing style on the relationship between mothers' need satisfaction and autonomy support ($Z = 5.34, p < 0.001$) as well as on the relationship between mothers' need satisfaction and structure ($Z = 2.63, p = 0.004$). In addition, the Sobel test supported the indirect effect of diffuse avoidant identify processing style on the relationship of mothers' need frustration with controlling ($Z = 1.83, p = 0.03$) and chaotic ($Z = 5.03, p < 0.001$) parenting. Further, the Sobel test supported the indirect effect of normative identify processing style on the relationship of mothers' need frustration with controlling parenting ($Z = 2.44, p = 0.007$) and structure ($Z = 2.30, p = 0.01$).

The indirect effects of identity commitment on the relationship of mothers' need satisfaction with autonomy

support ($Z = 4.23$, $p < 0.001$), structure ($Z = 4.27$, $p < 0.001$), and chaos ($Z = -3.73$, $p < 0.001$) were all significant. Finally, the Sobel test supported the indirect effect of identity commitment on the relationship of mothers' need frustration with chaotic parenting ($Z = 2.53$, $p = 0.005$) and structure ($Z = -2.64$, $p = 0.004$) but not on the relationship between mothers' need frustration and controlling parenting.

Testing Alternative Models

Although the analysis supported the hypothesized model, the findings did not rule out the possibility that other models could fit the data, perhaps even better. Thus, to provide further support for the hypothesized relationships, we tested the fit of two alternative models. In the first alternative model controlling for the child's age, we investigated parenting practices as the exogenous independent variables, need-frustration/satisfaction as mediating variables, and identity styles were the outcomes. We hypothesized direct and indirect effects between parental practices and identity styles. The fit of this model was poor ($\chi^2/df = 14.114$, $p < 0.001$; NFI = 0.80; CFI = 0.88; TLI = 0.55; RMSEA = 0.17). Based on the tenets that the process of identity formation occurs in a constant reciprocal interaction with the social environment (Soenens and Vansteenkiste, 2011), we then tested a second model in which we entered the mothers' identity styles as the exogenous independent variables, mothers' need satisfaction and frustration as mediating variables and mothers' parenting practices as outcome variables. Also in this case we hypothesized direct and indirect effects between the exogenous and outcome variables. The fit of this model to the data was as good as the fit of the hypothesized model ($\chi^2/df = 3.77$, $p < 0.000$; NFI = 0.96; CFI = 0.97; TLI = 0.88; RMSEA = 0.081). These findings may indicate reciprocal effects between need satisfaction and identity style, as will be further discussed.

Discussion

The current study examined mothers' identity processing styles and identity commitment as possible mediators of the association between their own need-based experiences and parenting practices. In line with our predictions, we found that the satisfaction of mothers' psychological needs was associated with increased openness to new information, higher motivation to revise aspects of their identity when faced with discrepant information about themselves or their children, and with a critical attitude toward the self-conceptions. Mothers who can explore conflicts and issues relevant to their maternal role openly and authentically, in turn, would be more likely to find the inner resources to provide the patient, gentle and clear guidance that

characterizes autonomy-supportive and structuring parenting (Brenning et al., 2015, 2018). The frustration of the mothers' three basic psychological needs limits their active and critical thinking. Such mothers would strive to avoid personal conflicts and identity-relevant problems by procrastinating decisions making and denying conflicting information. Therefore, they would find it difficult to adopt different perspectives and to flexibly adapt their attitudes to the changing needs of their children.

Consistent with recent parenting research within the SDT framework (Slobodin et al., 2020, Van der Kaap Deeder, 2017;2019), we found that mothers' need satisfaction and need frustration were associated with autonomy-supportive, structuring parenting, and psychologically controlling, chaotic parenting practices, respectively. These findings provide further support for the SDT dual-process model (Vansteenkiste & Ryan, 2013), which acknowledges the conditions under which parents tend toward a trajectory of greater support as opposed to the conditions under which parents tend toward a trajectory of greater control (Haerens et al., 2015). Overall, these studies suggested that the extent to which psychological need experiences would be translated into particular parenting practices may be explained by the level of parents' psychological resources. When parents' needs are satisfied, they will be able to find the inner psychological and emotional resources to adopt a basic attitude of curiosity, flexibility, and openness (Vansteenkiste & Soenens, 2015). In other words, the satisfaction of parents' psychological needs has a vitalizing effect on parents (Campbell et al., 2018), which in turn leads to an increased capacity to support the child's autonomy. The frustration of parents' psychological needs, in contrast, has an energy-depleting effect on parents. Parents whose basic psychological needs are frustrated are more likely to feel pressured, inadequate, and isolated, thus more likely to become pre-occupied with their own problems and to enforce their own perspective (Van der Kaap Deeder et al., 2019).

The current study adds to the literature linking parents' need satisfaction and their parenting practices by considering identity style and identity commitment as possible mediators of this link. In line with studies in adolescents which found that need satisfaction provides the energy to engage in an open and flexible exploration of different lifestyles as well as the courage to make determined, authentic, and personally endorsed choices in life (Assor et al., 2020, Bornstein, 2019), our results suggest that basic need satisfaction continues to play a crucial role throughout the life course, providing mothers essential resources to explore issues related to their maternal identity.

There are several inter-related trajectories through which mothers' identity processing styles may explain the link between parents' need-based experiences and parenting practices. At the emotional level, different identity

processing styles are characterized by varying levels of self-regulatory resources (Berzonsky et al., 2007). Given the key role of an emotionally open, engaging, and responsive approach in the adult-child relationship (Brenning et al., 2020, Moè and Katz, 2020a), mothers with low levels of self-regulatory resources will show less emotional availability and responsiveness to the child (Kim, 2010) and will be more likely to use harsh or punitive discipline strategies or in intense anger, hostility or frustration externalization (Dix, 1991). Moreover, increased confusion and anxiety, typically characterizing individuals with diffuse-avoidant identity style (Hsieh et al., 2019), are considered antecedents of controlling parenting (Grolnick et al., 1996, Han & Lee, 2019).

At the cognitive level, different identity styles relate differentially to the quality of engagement and information processing (Duriez & Soenens, 2006). Mothers with an informational identity style are more motivated to actively and flexibly seek out, process, and utilize relevant information rather than avoid it or procrastinate their decisions (Distefano et al., 2018). Conversely, mothers with diffuse-avoidant and normative identity would feel pressured in the face of identity-related conflicts and would be inclined to adopt parenting practices that would protect or enhance their self-worth (Soenens et al., 2012).

Finally, mothers' identity processing styles are associated with different parental values and goals. Research showed that an informational style was positively associated with the self-transcendent and openness value dimensions, such as social justice, equality, and honesty, and negatively correlated with hedonistic values (Berzonsky et al., 2011). Thus, the behavior of mothers with an informational identity style will be more likely to enhance the child's autonomy by providing child's information rather than evaluation, encouraging self-exploration, independence, and active participation (e.g., in decisions making or in problem-solving) (Grolnick & Pomerantz, 2009). Mothers with a diffuse-avoidant style would be more oriented towards self-endorsed, outcome-focused goals (Berzonsky et al., 2011), leading them to overlook the child's frame of reference and adopt more controlling parenting strategies (Mageau et al., 2016).

While the diffuse avoidant and informational identity processing styles were clearly related to maladaptive and adaptive paths, respectively, investigating the role of normative identity style revealed a more nuanced picture. Our results suggest that normative identity style mediated the association between mothers' need frustration and their use of psychological control and structure. A normative style is typical of individuals who rely on the prescriptions and expectations held by significant others (such as parents and authority figures) when confronted with identity-relevant problems. Normative individuals are 'closed' to information

that may threaten their hard-core values and beliefs; they hold rigidly organized identity commitments that they defensively strive to preserve and maintain (Berzonsky, 1990). Research indicates that adolescents with a normative identity style are firmly committed, display high levels of conscientiousness, and possess a clear idea of their future purposes (Berzonsky, 2003, Duriez et al., 2004). However, they also have been found to score high on measures of cultural conservatism, need for structure, and need for cognitive closure (Berzonsky, 2002, Soenens et al., 2005) and low on measures of openness to values, actions, and fantasies (Berzonsky and Sullivan, 1992). Consistent with this view, our findings suggest that mothers whose basic needs are frustrated are primarily guided by introjected standards and rely on normative prescriptions and expectations of important authority figures when making identity-relevant decisions. Like mothers with diffuse-avoidant identity styles, mothers with normative identity style would continually accommodate their behaviors and views to current social demands and consequences, without making long-term revisions in their identity structure (Berzonsky, 1990). However, their high need for clarity and order combined with the anxiety provoked in ambiguous situations (Soenens et al., 2005) would promote these mothers to adopt practices that support structure, such as defining clear educational purposes, expecting compliance, and setting rules and boundaries.

Guided by evidence for a reciprocal relationship between need-based experiences and identity formation processes, we also tested an alternative model in which identity processing styles served as the exogenous variable and need satisfaction was the predicted variable. In line with previous research (Luyckx et al., 2009), our findings pointed to reciprocal effects between maternal identity processing styles and need-based experiences. Possibly, mothers who experience their environment as supportive were more likely to negotiate identity-related issues and conflicts with their significant others, thus experiencing increased support and a more consolidated identity (Luyckx et al., 2009). The cross-sectional nature of this study limits our ability to determine whether these effects reinforce each other over time.

Our results should be considered under several limitations. The major limitation of the current study is the exclusive reliance on self-reported data. This method involves problems of shared method variance, such that the associations obtained between mothers' need-based experiences, their identity processing styles, and their parenting practices may become artificially inflated (Liu et al., 2016). Using reports from multiple sources would be an effective way of overcoming this limitation. Also, like many other web studies, the self-selection survey and the lack of knowledge about the website members limited our ability to obtain a random sampling (Khazaal et al., 2014).

In addition, the current study is limited to the investigation of mothers. This shortcoming limits not only our understanding of the relationship between gender roles, parental identity, and parenting practices but also of how mothers and fathers reciprocally affect each other's parenting (Guay et al., 2018). Investigating the role of parental identity in both parents and their interparental contributions may improve our understanding of predictors of parenting practices, thereby contributing to the explanatory power of the family systems approach.

Second, the cross-cultural nature of the current study does not allow us to draw any conclusions about the causal relationship between the tested variables. Thus, inferences about the direction of the relationships were based on conceptual rather than empirical considerations. Longitudinal data are needed to examine the extent to which changes in identity styles lead to different parenting styles. The current study is also limited to mothers of preschool children, thus cannot be generalized to mothers of children of different ages. Our results suggest that within the small age range investigated, mothers of older children are more likely to have a normative identity processing style and to use more controlling parenting (yet, less chaotic and more structuring). These findings highlight the need to closely investigate how parents' identity processing styles and their parenting styles transform over time. Finally, the sampling method, which was based on snowball sampling and social media networks, may increase the risk for a self-selection bias and may contribute to an unbalanced sample in terms of demographic characteristics, and disclosure of personal information (Hall et al., 2018). The fact that we analyzed a non-random sample that included mostly Jewish, educated, employed mothers, limits the generalization of our findings to other socio-cultural contexts or the general population. Prior studies showed that the efficacy of identity and parenting styles were dependent on the socio-cultural context. For example, normative style (Bosma & Kunnen, 2001) and controlling parenting practices (Chen et al., 2016) tend to be more effective in contexts where conformity and obedience are expected and valued.

Implications for Research, Practice, and Theory

This study suggests that mothers whose three basic psychological needs are supported by their social environment would be more likely to establish informational, highly committed identity styles, which are associated with volitional identity commitments and intrinsic identity goals. In contrast, the frustration of mothers' psychological needs has an energy-depleting effect on mothers. These findings suggest that both need satisfaction, and the formation of processing identity style may represent targets for intervention. However, since previous research has pointed to the

time-limited effects of intervention strategies that focus on identity processes (Ferrer-Wreder et al., 2002), need satisfaction could represent an important resource of long-term changes in identity formation (Luyckx et al., 2009). Focusing on need support might be most relevant in contemporary societies that lack structure and guidance on which to rely in forming a sense of parental identity, thereby forcing parents to rely on self-exploration and reflection processes (Piotrowski, 2019). Community or school-based interventions that support parent-need satisfaction, may eventually lead parents to establish identities that represent a more authentic expression of their own values and interests (Luyckx et al., 2009). Parents should be encouraged to allocate self, family, and community sources of support and to avoid or minimize need-frustrating environments. Given the importance of contextual factors (e.g., socioeconomic status, ethnicity) in the formation of maternal identity (Lim, 2012), future research, theory, and practice should address the role of social identities in the associations between of mothers' identity, parenting practices, and children's development.

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Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethical Approval The study protocol was approved by the ethics committees of the Ben-Gurion University.

Informed Consent Prior to participation, all subjects were informed about the purpose of the study, the voluntary nature of their participation, data storage and security. They gave written informed consent before participating.

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